Medical Therapy of Stable Multivessel Coronary Artery Disease. Less is More?

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Abstract

Despite the advances of all forms of treatment of coronary artery disease (CAD), there is still considerable controversy about the benefits of myocardial revascularization surgery compared to medical therapy (MT). In multivessel CAD, randomized clinical trials have demonstrated that revascularization techniques did not reduce the incidence of hard outcomes, such as death and nonfatal acute myocardial infarction. Thus, these studies suggest that the MT, a lower treatment cost, may be applied as an initial therapy for these patients.

Keywords: Coronary disease; Myocardial revascularization; Therapeutic approaches

Introduction

The availability and use of additional medical resources are not synonymous with better results in the patient-centered care. In the United States, results in areas in which there are more resources in use have been proven not to be better than those of areas with less medical resources¹. In this context and in an economic downturn scenario, resources available to highly complex interventions, such as myocardial revascularization surgery (MRS) and percutaneous coronary intervention (PCI), will need to be managed with due care.

Although in recent years the world’s leading cardiology societies have reported guidelines and appropriateness criteria for MRS and PCI in coronary artery disease (CAD), many questions still remain about the advantages of one technique over the other, and especially compared to medical treatment (MT) of multivessel CAD.

CAD Treatment – effectiveness

Evidence of MRS and PCI effectiveness to reduce myocardial ischemia in numerous randomized clinical trials (RCTs) conducted over the last few decades has contributed to a wide application of these techniques in the treatment of stable CAD. Although no RCT is proven to increase life expectancy or reduce the incidence of acute myocardial infarction (AMI), when compared to MT or MRS, the assumption that primary PCI benefits are extended to patients with stable CAD and the conception that it poses lower risks when unclogging coronary arteries, made IPC the mostly used revascularization technique worldwide².

The theoretical advantage of PCI over the MT, i.e., all obstruction must be treated, found no support in any RCT dedicated to establish comparison between these therapeutic options³. MT has always been underestimated because it was thought to produce bad results, on account of the presence of untreated obstructive lesions, and to be an unsafe and ineffective manner to deal with coronary artery blockages⁴. However, the ECR COURAGE⁴ demonstrated that the optimized MT is not only safe but also effective in the treatment of myocardial ischemia.
Multivessel coronary artery disease - how to manage it?

The first RCTs to confront both MRS and MT did not specifically address patients with multivessel CAD. It was intended to prove the advantage of surgical revascularization over MT. In fact, in these RCTs, MRS was confronted with an MT that, when compared to contemporary optimized MT, was little more than a placebo. Additionally, although there were statistically significant differences in subgroups with higher anatomic (left main coronary artery lesion - LMCA) and functional (extensive ischemia and left ventricular dysfunction) severity, these subgroups were composed of a small number of patients, which produced sample sizes insufficiently large to point out any advantage of a therapeutic option over the other

Out of all the RCTs, the one that is closest to clinical reality, for having included the MT option, is the MASS II study. This study, which addressed patients with multivessel CAD and preserved ventricular function, certainly for fear that the mortality and morbidity rates with MT are high, even if this alleged harm caused by MT is questioned.

The evidence unfavorable to TC has as one of its pillars an observational study by Hachamovich et al. However, as this analysis was based on observation and non-randomization, MT patients had many more comorbidities, with it being no surprise, however, that they obtained the worst results.

The debate on the best manner to conduct revascularization in stable CAD gained momentum in recent years due to PCI with drug-eluting stents (DES), but the absence of MT in the RCTs that had used them is a source of frustration. With the investment in the SYNTAX study, the STICH study, hypothesis 1, showed that in five years of follow-up, mortality was similar in the confrontation between MT with MRS. Even with the limitations of this study, it was at least surprising the finding that MT produces the same life expectancy as MRS, revealing, therefore, that MT is a safe alternative for this type of patient.

Therefore, although there is no definitive answer as to the best therapeutic strategy for patients with multivessel stable CAD with or without left ventricular dysfunction, and under the perspective that “less is more”, a proposal is made here that the optimized MT, a lower cost treatment, can be used without fear as the initial treatment of patients with multivessel CAD, as it does not account for mortality in excess, both in the presence and absence of left ventricular dysfunction compared with coronary revascularization techniques.

Potential Conflicts of Interest
No relevant conflicts of interest.

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Point of View
The opinions expressed in this manuscript are those of the authors only. The International Journal of Cardiovascular Sciences welcomes different points of view in order to stimulate discussions intended to improve patients’ diagnosis and treatment.
References


